

GCSE ICT Full Course Coursework - Project 2

INTRODUCTION

I plan to create a system for a car show room's business. I will be doing this for my father's car sales show room. I plan to make him a new system on the computer and to enter all his information of the different information on the cars he is selling on to this new system. This system is only to be used by my dad or his partner and not by the customers.

They need a new system because he does not have a good system at the moment he doesn't have folders for all the cars he is selling or that he has sold and most are kept in one box which is quite hard to find. By creating this system he will be much more organised for when customers come in as he can do searches of cars if they are interested in a certain type or even search by price etc. This means it does not take him ages to find information of one car and it will be more professional and a lot easier to read off.

IDENTIFICATION OF THE PROBLEM

These are the following problems that my user has come across:

1. As the users current documentation is all kept in files in a filing cabinet, in date order, it is extremely hard for a user to find a car that a customer wants, which has a certain feature e.g. car type, colour, price etc. as they have no order you need to sort through all the files to find the car to suit the customer's wanted feature. A database would allow the user to sort the information how they wish so they can easily do searches for certain features.
2. As files can be taken out easily by anyone who works with the files it is easy for anyone to forget they have not put the file back or to take it away by mistake leading the file to get lost or misplaced. A database would allow the user to store information about cars and could not be removed from the system.
3. As the users mainly works away from the office they often need to do searches for car prices when on the move between customers but this cannot be done when all the information is in the office. A database would allow the user to do searches on a laptop whilst on the move meaning they would not have to carry all the files around.
4. When working out calculations and comparing prices to figure out the amount of cars that are different ages etc, mistakes are sometimes made and this is time consuming. A

spreadsheet would be able to carry out calculations quickly and accurately.

REQUIREMENTS OF THE NEW SYSTEM

Requirement 1- My user requires a record of all the cars at the site to be kept so that if a customer comes in and makes an enquiry about a specific car, my user will be able to tell them if they still have it. For this you can use a database.

Requirement 2- My user requires a system that holds the data and will not allow anyone to take away a file but allowing them to take away copies of it. For this you can use a database.

Requirement 3- My user requires the use of a system that would allow the user to copy all his files onto a floppy disc meaning he can transfer all his files onto his laptop being able to do searches while not being at the office.

Requirement 4- My user requires the use of calculations to calculate how many cars are of different ages. They need a system that will be accurate and quick so they do not have to take a long time if they make a mistake.

METHODS OF COLLECTING INFORMATION

<u>Method</u>	<u>Advantages</u>	<u>Disadvantages</u>	<u>Selected?</u>	<u>Reason</u>
Questionnaires	They save time because you can give out to many at one time. As there are specific questions do not go off the point. You can also give the same questions to all help to focus to a specific area.	Because it is focused some issues are not explored. They may have difficulty understanding if not well designed and easy to fill in. Sometimes do not complete them in time or do not bother.	No	I cannot do a questionnaire as the company I am focusing on has only a few people involved. Not very detailed.
Interviews	Interviews allow you to explore areas in more detail. Certain issues can be raised which are also important, which the consultant was unaware of.	They take up a lot of time for both people It may be hard to stick to the point if the interview raises other points.	Yes	More appropriate as in more detail if they can find more time and more depth questions asked.
Observations	Observations give a clear picture is given of the tasks and processes	The person being observed may change the behaviour because they are being watched.	No	Not appropriate, as it would be hard to follow, as you cannot find much info.
Current documentation	Current documentation gives a clear written document of the tasks and processes within the company.	They may only give you info. they want to which may not be relevant.	No	Not appropriate as it will not help me with the task I am doing in this project.

JUSTIFICATION OF CHOSEN METHODS

I have chosen to do an interview to collect my information as it is the most appropriate method they can be given in more detail if they can find more time and more depth questions can be asked.

EVIDENCE OF METHODS OF COLLECTING INFORMATION

Interview of Robert James, Shenfield Motors

1. What information/data does your company currently use?
Information on stock is articles of cars etc.
2. How computer literate are you?
Quite, we have a website which displays all the information of our stock and we type up our stock is e very month.
3. What does your company do with that data (e.g. sorts/searches/printouts/write letters/create graphs)?
As a reference to carry out searches, graphs and to see what the cars are doing best, e.g. for two weeks.
4. Are you and your colleagues familiar with using Access, Excel or word?
I am familiar with using word and Access, I am not an expert in Excel.
5. How is your data currently stored and does it have some sort of order e.g. alphabetically?
The data is typed up onto the computer and kept in a filing cabinet, some is entered by hand and is kept in the order for the cars have been in stock.
6. What problems do you have with this current system?
I do not have access to it at times e.g. whilst moving around cannot get to the files as I cannot get to the filing cabinet. Sometimes those files or they are not easy to read.
7. What other things would you like to do with the storage method of your data?
On the computer I would like to sort the data by type of car - alphabetically. Customers will use this system so more complex searches and things can be done.
8. Would you need a user guide with the new system?
Yes I may need someone to explain it to me in more detail.

INPUTS, OUPUTS & PROCESSING

Requirement 1 - A customer comes into the showroom and wants to buy a ford Mondeo but it must not be red in colour. The owner then has to search the entire filing cabinet to find all the ford Mondeo cars. He then needs to search through these making sure that none of these are red in colour. Having found the cars, which match these criteria, he writes down all the information the customer wants to know about the car e.g. the price.

Input data- Type of car (Mondeo), Colour (red)

Processing- the user looking through the filing cabinet

Output data- a list of the ford Mondeos that aren't red.

Requirement 3 - My user is away from his office where the filing cabinet is which has all the files in it. He receives a call from someone inquiring about a car on his phone. My user now needs to go all the way back to the office to look through the filing cabinet as he can not take the filing cabinet around with him so this is very time consuming. He then must find all the information about the car needed and tell the customer who wants to know what cars he has to offer them.

Input data- a type of car wanted

Processing- driving all the way back to the office and searching through the filing cabinet.

Output data- the information about the suitable cars needed and then ringing the customer and telling them.

Requirement 4 - My user wants to calculate the different ages of the different types of cars at the end of the month so they can see what ages are the most appealing to customers. This means the user must search through all the different files in the filing cabinet and then put them all in piles of different types of cars and then split these up into ages and create a graph by hand.

Input data- the different ages of cars and their types

Processing- searching through the filing cabinet and then placing these into there separate groups

Output data- a hand drawn graph showing the different ages of different types of car.

SOFTWARE NEEDED

There are three different types of software that I can use; I shall assess each one first.

Types of software:

- Single application- general purpose including a spreadsheet database, a word processor, graphics. When using these you are just opening the features that go with that particular type of software.
- Integrated software e.g. works- it automatically comes with the facility to do word processing, databases and spreadsheets. It is cheaper and preloaded onto many new computers and it is easy to learn how to use.
Its disadvantages are that they only have limited features compared to single application and not many advanced features. When you open up works you open up all of them. It is a larger application with more memory so it can move information from one application to another application. Although if a part of this isn't working it could affect other parts.
- Suite software e.g. office professional - A suite gives you a database, spreadsheet and a word processor but they are individual so you can load up one at a time. Its advantages are that you can easily move information from one application to another and if one part goes wrong you can still use the other parts.

I have chosen to use a single application because they are simple to use as I use these frequently and they are already loaded at school, it is also easy to transfer documents to my home system and if one application is not working it does not affect the others.

HARDWARE NEEDED

<u>Hardware 1</u>	<u>Hardware 2</u>	<u>Chosen</u>	<u>Reason</u>
Laser Jet	Ink jet	Laser jet	A laser jet is a lot faster to print out documents and reports. A large number of printouts can be done using a single toner cartridge, so it is not necessary to frequently buy cartridges.
Mouse	-		It is easier to select items and start tasks by clicking icons or menus rather than typing in commands, it is a faster method to help you move around a document.

Keyboard	-		Most computers have this device attached to it and a skilled typist can input data very quickly.
Processor: 1Ghz Celeron	-		It carries out the instructions of a computer program.
Monitor: SVGA 15 inch	-		To display the data that I have entered.
Hard disk drive: 20 Gb	-		This stores all the data allowing you to read and add to it at any time.

DATA STRUCTURE DESIGNS

FIELD NAME	DATA TYPE	PROPERTIES	VALIDATION RULE
Make	Text	40 Characters	N/A
No. Of doors	Number	Integer	≥ 2 AND ≤ 5
Colour	Text	20 Characters	N/A
Price	Number	Currency	> 0
Date Registered	Date	Short date	N/A
Previous owners	Number	Integer	N/A
Mileage	Number	Integer	N/A
Special features	Text	50 characters	N/A

FIELD NAME	DATA TYPE	PROPERTIES	VALIDATION RULE
Make	Text	20 Characters	N/A
Model	Text	20 Characters	N/A
No. Of doors	Number	Integer	≥ 2 AND ≤ 5
Colour	Text	20 Characters	N/A
Price	Number	Currency	> 0
Year Registered	Number	Integer	N/A
Previous owners	Number	Integer	N/A
Mileage	Number	Integer	N/A
Special features	Text	50 characters	N/A

The two designs **must** have at least **two differences** and these differences **must** be **appropriate**. For example changing the number of characters for a 'name' field from 25 to 20 would **not** be appropriate. Whereas, splitting a single name field into a surname and forename field would be.

You may be able to add or remove a field in the second design if you can come up with a suitable reason. See the examples below:

- In the above database structure the 'year of registration' may be more suitable than the 'date of registration'.
- Likewise, the make and model could be split into two separate fields so that the user is not based on make.
- Or, the summary field could be changed to a text field so that more, automatic or manual notes are given more information to the customer.
- In a real database you may have 'index' fields like 'year of release' and then in the second sign you could have removed it as customers can ask for this based on the year of release.
- A address field can be split up into three fields - street, town, county for example, as you could then search for people in a certain street or town.

You will need to try and identify changes that can be made to the database structures for your specific problem. **REMEMBER THEY MUST BE APPROPRIATE**

CHOSEN DESIGN

FIELD NAME	REASONS WHY INCLUDED
Make	Make of the car, needed as a reference to what car you are talking about
Model	Make should be split into model. This is the model of the car as a reference as to know what type of model a certain make of car is.
No. Of doors	This is so the person wanting the car knows how many doors are on a certain car. Also this could be a search criteria.
Colour	This is so the person wanting the car knows what the colour is of a certain car. Also this could be a search criteria.
Price	This is so the person wanting the car knows the price of a certain car. Also this could be a search criteria.
Year Registered	This is to know the age of a car, we can tell this by looking at the registration letter of the car so we can then find out the year, therefore the age.
Previous owners	This is to know how many owners the car has had previously because often a car with more owners is in a worse condition.
Mileage	This is to know how many miles the car has done. Often the car goes down in value or the customer is not willing to pay as much if the car has done more miles.
Special features	This is to know what features a car has that not every car has such as air conditioning, some customers ask whether cars have things like this but this normally makes the car a bit more expensive.

DESIGN DIFFERENCES

REJECTED DESIGN	ADVANTAGES/DISADVANTAGES	CHOSEN DESIGN	ADVANTAGES/DISADVANTAGES
Date registered	Adv. Can tell customers exactly what date the car was registered on Disadv. Too much detail for most customers, as they only want to know the year and not the rest of the date and not always	Year of registration	Adv. It is much easier to give the customer the data they are most interested in and you always know what year it is going to be by the registration letter. Disadv. You cannot tell the customer what month the car was registered you always know what year it is going to.

	available.		be by the registration letter.
Make & Model	Disadv. Cannot sort the cars into order on make and model	Make	Adv. More flexible as you can sort or search on either or both fields
		Model	

JUSTIFICATION OF CHOSEN DATABASE STRUCTURE

I have chosen to do table 2 because I think that the changes I made to table 1 make the table a lot better. I think that year of registration is better than having date of registration because it is more suitable as the month or date of when the car was registered may not be available to the user. The user also might not want the month details but just the yearly ones. This also means less work for the user overall as if they need the date of the registration then that means researching into the log books whereas the year of registration is easily available as you can tell this by looking at the cars registration letter.

Another reason why I have chosen table 2 is because instead of having make and model in the same field (table 1) it is now separated into two different fields. This now means it makes it more flexible to sort and search on either or both fields.

VALIDATION TEST PLAN

To test a text field you can only try to enter one more character than you stated in the properties unless you have an actual validation rule such as “Married OR Single”.

To test a number or date field you can type text in such as ‘one’ which will generate an error message.

Test	Field	Data	Expected Outcome	Actual Outcome	Action

USER INTERFACE DESIGNS

You will also need to create **two** interface designs for your project and each will contain the all of the fields in your chosen database structure. See the example database structure for the example car database below. Describe the designs including format of fonts, colours and layout.

Design 1

Design 1 shows a simple form layout with the following fields: Model, Make, Year, Colour, Doors, Engine, Sunroof, Forename, Surname, Street, Town, and County. The form is white with a black border. Callouts indicate 'Light' and 'White - Font Arial size 10'.

Design 2

Design 2 shows a form layout with a dark background and white text boxes. The fields are grouped into two columns: Model, Make, Year, Colour, Doors, Engine, Sunroof, Forename, Surname, Street, Town, and County. Callouts indicate 'Dark', 'Light', and 'White - Font'.

You need to discuss the advantages and disadvantages of each design and justify your choice of design. You can use the tables shown below and then write a brief justification of your final choice.

REJECTED DESIGN	ADVANTAGES/ DISADVANTAGES	CHOSEN DESIGN	ADVANTAGES/ DISADVANTAGES
Field layout	Adv. All the relevant fields are included Disadv. No real structure or flow	Field layout	Adv. Logical layout splitting up the different fields into two logical groups
Colour	Adv. Suitable colour background for prolonged use. Text boxes white background good contrast. Disadv. A bit plain looking not professional enough	Colour	Adv. Suitable colour background for prolonged use. Text boxes white background good contrast. More professional as there is a contrasting background and each data group is more obvious.
Font	Adv. Arial is good font to use for displaying	Font	Adv. Arial is good font to use for displaying information on

	<p>information on the screen, as it is plain. Black font will provide good contrast.</p> <p>Disadv. Size 10 may be too small for some users</p>		<p>the screen, as it is plain. Dark blue font will give the form a more professional look while maintaining the contrast. Size 12 will be more suitable for most users.</p>
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~~Written instructions here.~~

OUTPUT DESIGNS - REPORTS

You will also need to create **two** report designs for each of your columnar and tabular reports. The different designs will have the fields in a different order or have different fields; you can also change the fonts, font size, formatting, etc. See examples below:

Tabular Designs

Design 1

Forename	Surname	Date of birth	Gender	Married
Jessie	Jones	01/01/1999	Female	Yes

Design 2

Surname	Forename	Date of birth	Married
Jones	Jessie	01/01/1999	Yes

Columnar Designs

Design 1

Jessie's Today

Forename	<input type="text"/>	Day	<input type="text"/>
Surname	<input type="text"/>	Instrument	<input type="text"/>
Telephone	<input type="text"/>	Grade	<input type="text"/>

Design 2

Jessie's Today

Forename	<input type="text"/>
Surname	<input type="text"/>
Telephone	<input type="text"/>
Day	<input type="text"/>
Instrument	<input type="text"/>
Grade	<input type="text"/>

JUSTIFICATION OF DESIGNS

For each report you create you will need to discuss why you have chosen a tabular/columnar report for this report.

Your justification needs to relate the advantages of the chosen type of form to the query/table it is based upon and what it is to be used for.

For example if you are producing a report of a query that sorts the data as a list of customers for example then you would choose a tabular report as you can see a number of different customers at a time.

Whereas if you were producing a report to show all the fields of each customer then a columnar report would be chosen as it may not be possible to fit all the fields at the top of a tabular report.

You must justify the choice of report type and not just the choice of fields to print and the choice of fields to print.

Justification of Chosen Design

As with your form designs you must justify the chosen design discussing advantages and disadvantages of each design.

REJECTED DESIGN	ADVANTAGES/ DISADVANTAGES	CHOSEN DESIGN	ADVANTAGES/ DISADVANTAGES
Field layout	Adv. Forename field is first as it this is the order a name is read in Disadv. Does not allow it to be sorted properly	Field layout	Adv. Surname field is first as it is sorted on this field Disadv. None
Font	Adv. Plain font Disadv. Font is too small for some people to read	Font	Adv. Font is plain and big enough to be read by most people
Fields	Adv. All fields are included Disadv. Gender field is not needed for this purpose	Fields	Adv. Only those fields that are needed are included making report easier to read.

You must write a short paragraph stating the chosen design and why it was chosen.

OUTPUT DESIGNS – MAIL MERGE LETTER

You will do exactly the same for your mail merge letter as you did for your chosen report designs. i.e. a table showing the advantages

and disadvantages of each design and a written justification of the chosen one.